

F12#434

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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SECURITY INFORMATION

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SUBJECT	Werk fuer Fernmeldewesen HF (OSW) Production and Personnel	DATE DISTR.	13 August 1953	
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1. Production in April 1953.

The quota for the whole factory was 58% filled. Details are as follows:

Radio tubes	48%
Metal ceramic tubes	28% (of old quota of 5,500)
Large transmitter tubes	63%
OR tubes	72%
Other transmitter tubes	89%
Stabilizers	100%
Thyratrons (Stromtoren)	75%
Technical tubes	115%
Instruments	37%

2. Proposed tube development plan for 1954.

Dr. Ladurner, who is responsible for tube development, has submitted to Dr. Ulrich, head of the Versuchswerk (Research Department), the following proposals for tube development in 1954:

a. Radio tubes

- (1) Development of the oscillator tube 6 AF 4 in miniature form with limiting frequency of 900 mcs. (50,000 DME)
- (2) Development of the amplifier triode 6 AJ 4 with grid return switching (Gitterbasisschaltung) for a limiting frequency of 900 mcs. (50,000 DME)
- (3) Development of the switch diode PY 81. Voltage filament-cathode 4.3 kv. (35,000 DME)

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- (4) Development of the double triode ECC 84 for the input stages in television receivers in cascade switching. (40,000 DME)
- (5) Improvement in the life and reliability of the technical tubes EF 800, EL 803 and EF 802. Work to continue over two years until the fourth quarter of 1955. (60,000 DME)
- (6) General research into the improvement of radio tube production. (50,000 DME)
- (7) Development of a tuning indicator tube in miniature form specially suited for AM/FM receivers. (Agreement must first of all be reached with the Funkwerk Erfurt.)
- (8) Development of a broad-band amplifier tube with high S/C ratio for technical purposes. (Agreement must first of all be reached with the Funkwerk Erfurt.)

b. Transmitter tubes

- (1) Bringing to the production stage and pilot series production of the 3 kw VHF triode and tetrode. (70,000 DME)
- (2) Bringing to the production stage and pilot series production of the 20 kw triode. (70,000 DME)
- (3) Development of the 50 kw triode - continuation of the 1953 task. (90,000 DME)
- (4) Development of transmitter tubes for 400 mcs. To be completed in 1955. (80,000 DME)
- (5) Development of an impulse amplification tube. (120,000 DME)

c. Decimeter tubes

- (1) Development of a low noise level moving field tube - continuation of the 1953 task. (100,000 DME)
- (2) Development of a moving field tube with high efficiency (Wirkungsgrad). To be completed in 1955. (70,000 DME)
- (3) Development of an impulse magnetron for 10 cms - either LMS 1000 or LMS 100. (100,000 DME)
- (4) Further development of a tuneable power klystron for 3-8 cms - continuation of the 1953 task. (60,000 DME)
- (5) Development of a noise measurement apparatus with gas discharge tubes for shortest wave-lengths. (50,000 DME)
- (6) Further development of the VHF transmitter tube similar to the LD 12 - continuation of the Soviet task for 1953. (60,000 DME)

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- (7) Further development of the reflex klystron 726a. (50,000 DME)
- (8) Bringing to the production stage the impulse magnetron 730. (60,000 DME)
- (9) Bringing to the production stage the cut-off tubes LG 76, LG 79, LG 80. (40,000 DME)

d. Special tubes

- (1) Development of push-pull tetrode for 400 mcs-continuation of the 1953 task. (50,000 DME)
- (2) Development of a broad-band amplifier pentode type 1003 for use in modulation amplifiers. (90,000 DME)
- (3) Improvement of starting anodes for ignitrons. (40,000 DME)
- (4) Development of a thyatron with cold cathode for alarm installations - maximum anode current 25 ma. (50,000 DME)
- (5) Introduction and improvement of the sinter glass technique. (30,000 DME)

3. Commercial television receiver production

- a. The Werk HF has had to redesign its television receiver as a result of poor behavior during tests of the prototypes. It has been decided to increase the number of tubes from 14 to 15, excluding the cathode ray tube. The new design incorporates the following tubes: four EF 80, one EAA 91, one PL 83, one PL 81, two PCL 81, one EBF 80, one PY 80, one EY 51, one ECH 81, and two ECC 81. A twelve-inch cathode ray tube (square or circular) is to be used. This tube is at present being developed, and will later be put into series production. It will incorporate a diagonal ray system (schräggestelltes Strahlssystem).
- b. Three prototypes of the new set have been made. One has been passed to the Soviet Control Commission in Karlshorst, one to the Sachsenwerk Radeberg for price estimates, and one has been retained by the Werk HF. These three sets were completed on about 30 April 1953.
- c. It was originally planned to start series production of the sets in the fourth quarter of 1953, but difficulties in tooling up and supply of materials has caused this to be postponed to 1954, when it is provisionally planned to build 30,000 at Sachsenwerk.

4. Production of television sets at Sachsenwerk Radeberg

Production of the Leningrad television sets by the Sachsenwerk Radeberg will cease at the end of the third quarter of 1953. During the period prior to production of the sets developed by the HF plant, the Radeberg plant plans to begin production of its own television receiver model number 852, which includes 26 tubes of the "6" series with octal bases and the 9 inch cathode ray tube LK 23b. It is not known whether these sets are designed for export or domestic use.

5. Metal ceramic tubes

- a. The 1953 plan estimated a production of 60,000 metal ceramic tubes,

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of which the Russians had placed an order for 33,000. 10,000 were actually made and despatched to the USSR in the first quarter, but production was then forced to stop because of a lack of zirconium oxide and thorium.

- b. The Werk HF thereupon requested the USSR through the East German foreign trade organization DIA to supply the raw materials thorium, zirconium oxide, and fernico sheet required for the order. Instead of supplying these materials, the Russians cancelled the outstanding part of their order. This cancellation still stands, although the Werk HF has withdrawn its request for the raw materials.
- c. The factory has, therefore, been forced to reduce the monthly planned output from 5,500 to 2,000 tubes, and to find other employment for half of the 150 workers concerned in this production.
- d. The average reject figures for metal ceramic tubes during the first quarter of 1953 were:-

LD 7	61%
LD 9	72%
LD 11	67%
LD 12	65%

The main fault, which accounted for about half the rejects, was failure of the vacuum.

6. Nine-inch cathode ray tubes

- a. The 1953 plan estimated a production of 140,000 tubes. No firm export order had been received, although this figure had been reported as the production figure. About 30,000 tubes were produced in the first quarter, of which only about 10,000 were taken by the USSR. The other 20,000 were rejected for all sorts of small indefinable faults. It is clear from this that the USSR has no further interest in the nine-inch tube, having recognized that it is out of date and of little value.
- b. The production of these tubes has, therefore, been reduced from 11,000 monthly to 2,500 monthly, and 250 of the 370 persons employed in this department have had to be assigned to other work.

7. Raw materials in short supply

350 kg of tungsten sheet were received in April by the Werk HF from [] 250 kg zirconium oxide from the [] and 400 kg nickel-C drawn tube (Vollziehrrohr) from the USSR.

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8. Tube nomenclature

The [] East German standards committees have agreed to designate the [] tube 6 AG 5, which has been developed by the Werk HF, but is not made in [], the EF 96.

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9. Personnel changes

Dr. SCHOLZ, in charge of the development of television and VHF transmitters, has left the Werk HF to join [] Jacobsohn, SED party secretary, is to leave the Werk HF shortly.

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10. Visit by Czech engineers

- a. In early May 1953, two Czech engineers, one named Flak (phonetic), visited the Werk HF. They came from a state-owned institute which had formerly belonged to the Tesla concern. They stated that this institute had sections for wire technics, communications technics, decimeter technics, and vacuum tube technics. The two engineers were instrument specialists and said they were working mainly on the development of Weitempfangsanlagen (so-called diversity reception installation) which they were extending to the short-wave and decimeter bands.
- b. The Czechs were shown round the whole Versuchswerk. They appeared to be interested in 10 cm equipment, but not in 3 cms. They placed an order for a 10 cm Ringmessleitung (closed circuit test line), 100 mcs frequency spectrometer, and all types of field strength meters available.
- c. They said that they used covar sheet and tungsten wire made in Czechoslovakia.

11. Visit from the Roentgenwerk

- a. Schwarzer, a designer from the Roentgenwerk Dresden, visited the Werk HF in early May to place an order for a 12.5 cm magnetron with cw output (Dauerstrichleistung) of 150 watts. This tube was required for therapeutic apparatus. It was agreed to start development of the tube in 1953, and to complete it in 1954.
- b. Schwarzer also said that Dr. Martin was developing a similar therapeutic apparatus in Zeiss Jena, using an LD 7 tube and working on a wave length of about 15 cms. Dr. Martin was, however, using point irradiation, whereas surface radiation was being used in Dresden. Hescho, Hermsdorf, had supplied Dr. Martin with a special ceramic antenna for use with his set.

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